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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,378	07/12/2005	Wolfgang Beyer	5776-000001/US/NP	2062
27572	7590	09/28/2006	EXAMINER	
HARNES, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			KIANNI, KAVEH C	
			ART UNIT	PAPER NUMBER
			2883	

DATE MAILED: 09/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/511,378

Applicant(s)

BEYER ET AL.

Examiner

Kianni C. Kaveh

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 26-49 is/are pending in the application.
- 4a) Of the above claim(s) 45-49 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 26-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

- Applicant's election with traverse of claims 26-44 in response/amendment submitted on 7/11/06 is acknowledged. The traversal is on the ground(s) that unity of the invention is present that the *"international searching authority has determines that the original claims 1-20 and original claim 23 all hade unity of invention"*.

This is not found persuasive since:

A. The claims are examined according standards set for applications filed in US in the light of standards set under regarding restriction under 35 U.S.C. 121 and 372,

under PCT Rule 13.1, in accordance with 37 CFR 1.499 in which applicant is required to elect a single invention. Note also that the original claims 1-25 are cancelled in the application and the present claims in question are Group invention I, claims 26-44, and Group **invention II**, claims 45-49.

B. There is a lack of unity of invention since Group invention I claims 26-44 are directed to a light applicator with a diffuser which is attachable to a light guide depicted in **Fig. 1-3 and/or Fig. 5-7**; while Group invention II, claims 45-49 are directed to a method for producing a diffuser which is connectable to a light guide depicted in **Fig. 4A-4E**. Clearly each of the above inventions, as stated in the last Office Action by the examiner defining an invention with different limitations that requiring a different search than that of other invention, and in

which the light applicator of invention I can be made with different method such as by filling the tube with one medium rather than by first and second medium as stated in invention II. The requirement is still deemed proper and is therefore made **FINAL**.

### **Drawings**

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, organ must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### **Specification/claim/abstract objection**

The limitation 'diffuser' is misspelled. Correction is required (diffuser).

TiO<sub>2</sub> or BaSO<sub>4</sub> are not spelled out. Corrections are required.

### ***Claim Rejections - 35 USC 112***

Claims 26 35-37, 39-40 and 43-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. *Claims 27-44 depend on claim 26 and therefore they are also rejected.*

claim 26 is ambiguous and indefinite, because of the following reasons:

in line 1, attachable is ambiguous since it implies that it may or may not be able to attach (suggestion: is attached).

The limitations 'light applicator' and 'diffuser' are attributed in the specification to a whole system as in fig. 1-3; but in at least claim 26, it implies that the 'light applicator' is a different device/system than 'diffuser'. Correction is required.

The limitation 'the diffuser will overlap with respect to a line-of-sight aligned in at a right angle' is ambiguous as what exactly meant by this limitation. There is little or no information in the specification to decipher as what the applicant is trying to claim/explain.

The limitation 'laminar flow profile' is ambiguous as what exactly meant by this limitation. There is little or no information in the specification to decipher as what the applicant is trying to claim/explain.

Claims 35 is ambiguous and indefinite, because of the following reasons:  
First there is insufficient antecedent basis for this limitations 'the power density' and 'the chosen scattering parameters' and 'the proximal diffusion regions'.  
Secondly, there is little or no information in the specification to understand where exactly 'the local maximum' is located since it is not clear as where id exactly 'the proximal diffusion region'.

Claims 39-40 are ambiguous as what is meant by 'on the basis of'. (suggestion: is injected or filled by).

Claims 43-44 are ambiguous as what the limitations "is provided with a flexible/rigid configuration'. There is little or no information in the specification to decipher as what the applicant is trying to claim/explain whether the diffuser tube is flexible or a fiber is flexible or something else ? Corrections are required.

### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2883

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 26-32, 34-38, and 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bays et al. (US 2005/0165462).

Bays teaches a light delivery device with a diffuser which is attachable to a light guide (shown in at least fig. 1) and in which different diffusion regions with different scattering parameters follow successively along an optical axis of the light guide prolonged into the diffuser and in which the diffusion regions will overlap with respect to a line-of-sight aligned at a right angle to the optical axis of the light guide (shown in at least fig. 9, items overlapping diffusion regions), wherein a boundary surface between adjacent diffusion regions has the shape of a laminar flow profile (shown in at least fig. 9, is a shape of a laminar flow profile over boundary surface between adjacent diffusion regions).

However, Bays does not explicitly state that the above light delivery device is a 'light applicator'. It is obvious/well-known to those of ordinary skill in the art when then invention was made that a light deliver device with a diffuser is/known-as a light

applicator, since such device would provide light transmission and diffusion apparatus is operable with a high efficiency, highly predictable illumination profile and ease of use (0023).

Bays further teaches wherein the boundary surface is formed in a paraboloidal way between the diffusion regions (see fig. 9); whose diffuser comprises a mirror element at its distal end (see 0004); wherein the concentration of scattering centers as averaged over the cross-sectional surface area increases along the optical axis towards the distal end of the diffuser (this is a functional limitation not given patentable weight, none the less it is taught by Bays shown in at least fig. 9/10/4); whose diffuser has a homogeneous distribution of light along the optical axis as a result of the scattering parameters in the diffusion regions (shown in at least fig. 4); wherein the diffuser is associated with a reflection element by which the light emitted by the diffuser can be guided in a predetermined direction (see 0004); wherein the transition between the light-emitting surface of the reflection element and the light-emitting surface of the diffuser is provided with a configuration which is specific to the organ (see fig. 1); wherein the distribution of the power density of the light emitted by the diffuser along the optical axis has a local maximum in the region of the reflection element as a result of the chosen scattering parameters in the proximal diffusion regions (this is a functional limitation not given patentable weight, none the less it is taught by Bays shown in at least fig. 6/9/10/4); wherein the concentration of the scattering centers as averaged over the cross section has a local maximum in the region of the reflection element (this is a functional limitation not given patentable weight, none the less it is taught by Bays



shown in at least fig. 9/10/4); wherein the concentration of scattering centers along the optical axis as averaged over the cross-sectional surface area shows a minimum between the proximal end and the distal end of the diffuser (this is a functional limitation not given patentable weight, none the less it is taught by Bays shown in at least fig. 9/10/4); wherein the distribution of light through the light-emitting surface of the reflection element and through the light-emitting surface of the diffuser is homogeneous (see at least fig. 9/10); wherein the diffusion regions are produced on the basis of silicone (see parag. 0055); wherein the diffusion regions are enclosed by a covering which has a smaller refractive index than the refractive index of the diffusion regions (see at least fig. 9/10); wherein the light wave travels with high refractive index medium than a covering with less refractive index which light does not travel/exit the surrounding tube/covering); whose light-emitting surfaces are covered by a partly backscattering layer (see such extremely conventional limitation in at least 0032); whose diffuser is provided with a flexible/rigid configuration (shown in at least fig. 1 and 4).

Claims 33, 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over combination of Bays et al. and an article disclosed in Forschungsbericht 97 (Entwicklung eines Lichtapplikators für die PDT von Portio und Zervixkanal), Feb 1997 (supplied by the applicant as prior art).

Regarding claim 33 as stated in rejection of claim 32, above, Bays teaches all limitations that claims 33 depend on. Bays further teaches wherein the reflection element is a segment which is applied on the diffuser and which is provided on one

outer side with a layer reflecting the light (see 0004); wherein the diffusion regions are produced on the basis of silica (see parag. 0055). However, Bays does not specifically teach wherein the above reflection section is spherical and that wherein the diffusion regions are produced on the basis of silicone, TiO<sub>2</sub> or BaSO<sub>4</sub>. These limitation is taught by the article in Forschungsberich 97 article, above, (see in the fig. Item spherical reflector/mirror layer 'Reflektor' and page 2 1<sup>st</sup> parag.). Thus, Forschungsberich 97 article provides reshaping of a end reflector as spherical. Thus, it would have been obvious to those of ordinary skill in the art when then invention was made to use combiantionnal teachings of Bays and the published article to produce a light applicator/diffuser that include the above limitations, since such resulting device would provide light transmission and diffusion apparatus is operable with a high efficiency, highly predictable illumination profile and ease of use (0023).

#### ***Citation of Relevant Prior Art***

Prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In accordance with MPEP 707.05 the following references are pertinent in rejection of this application since they provide substantially the same information disclosure as this patent does. These references are:

- US 20040005423 A1 Dalton, Paul D. et al.
- US 20020027626 A1 Hiraishi, Masanori et al.
- US 20020007111 A1 Deckert, Curtis K. et al.
- US 5695583 A van den Bergh; Hubert et al.
- US 5196005 A Daniel R. et al.

US 5051872 A            Anderson; Charles H.

US 4422719 A            Orcutt; Donald E.

Bayer    Jurnal of photochemistry and Photography B: Biology, 36 (1996) 153-156

These references are cited herein to show the relevance of the apparatus/methods taught within these references as prior art.

**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Cyrus Kianni whose telephone number is (571) 272-2417.

The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 6:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font, can be reached at (571) 272-2415.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

(703) 872-9306 (for formal communications intended for entry)

**or:**

Hand delivered responses should be brought to Crystal Plaza 4, 2021 South Clark Place, Arlington, VA., Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956.

K. Cyrus Kianni  
Primary Patent Examiner  
Group Art Unit 2883



**K. CYRUS KIANNI**  
**PRIMARY EXAMINER**